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DIFFERENTICS WHITEPAPER v0.1 EN

The General Theory and Logic of Difference

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Abstract

Differentics is proposed as a new interdisciplinary scientific framework that studies difference as the most fundamental structural phenomenon underlying information, organization, dynamics, cognition, and complex systems.

Unlike traditional disciplines that begin with objects, particles, numbers, or information, Differentics begins with Difference itself.

The theory proposes that before identification, classification, measurement, computation, or observation become possible, difference must already exist.

Difference is therefore treated as the universal prerequisite for all distinguishable structures.

This Whitepaper provides a concise public introduction to Differentics, summarizes its conceptual foundations, presents its methodological framework, outlines its mathematical direction, and discusses potential applications across science, artificial intelligence, information theory, physics, biology, and complex systems.

1. Introduction

Modern science successfully explains numerous phenomena through specialized disciplines.

However, there is currently no unified discipline dedicated exclusively to the study of Difference itself.

Difference appears everywhere:

- mathematics,
- logic,
- physics,
- biology,
- linguistics,
- information,
- cognition,
- artificial intelligence,
- engineering,
- philosophy.

Yet each field studies only domain-specific manifestations of difference.

Differentics proposes Difference itself as the primary object of scientific investigation.

2. Why Differentics?

Most existing theories begin with predefined entities.

Differentics instead asks a more fundamental question:

What makes any entity distinguishable at all?

Without Difference:

- nothing can be identified;
- nothing can be compared;
- nothing can be measured;
- nothing can change;
- no information can exist.

Difference therefore precedes every act of recognition.

3. Core Principle

The central proposition of Differentics is:

Difference is the minimal prerequisite for every identifiable phenomenon.

This principle does not define what the universe ultimately is.

Instead, it defines the minimum condition required for any observable structure to exist.

4. Foundational Principles

Differentics is organized around several fundamental principles.

Difference → Relation

Differences establish relationships.

Difference → Structure

Relationships generate structure.

Difference → Interaction

Structures interact.

Difference → Dynamics

Interactions generate dynamics.

Difference → Stabilization

Stable dynamics produce persistent identities.

Difference → Complexity

Recursive stabilization produces complexity.

5. Difference Formation

Difference is not assumed to be static.

Differentics studies how differences emerge, evolve, stabilize, transform, and disappear.

This process is described by the Difference Formation Theory.

Its principal stages include:

- Change Potential
- Transformation Dynamics
- Difference Stabilization
- ADP–TRIFORMER Genesis
- Difference Formation Principle

6. The ADP–TRIFORMER Methodology

Differentics introduces a general methodological model for analyzing the emergence of differences.

The three fundamental components are:

Algorithm

Transformation rules.

Data

Potential distinguishable states.

Processor

The mechanism capable of realizing transformation.

Together they describe how potential differences become stabilized observable differences.

7. Formal Differentics

The conceptual framework extends naturally toward mathematical formalization.

Current developments include:

- Difference Algebra
- Difference Information Theory
- Difference Metrics
- Difference Geometry
- Difference Topology
- Difference Dynamics
- Difference Networks
- Difference Fields

These areas collectively form the Formal Differentics Mathematical Corpus.

8. Possible Scientific Applications

Differentics may contribute to research in:

- Artificial Intelligence
- Machine Learning
- Pattern Recognition
- Information Theory
- Cybersecurity
- Cognitive Science
- Systems Theory
- Complex Networks
- Physics
- Biology
- Robotics
- Evolutionary Systems
- Linguistics
- Decision Theory
- Philosophy of Science

The present Whitepaper introduces these possibilities without claiming completed solutions.

9. Current Publication Status

The current academic foundation includes:

- DIFFERENTH Manifesto
- DIFFEREDITIONARY
- Axiomatic Foundations of Differentics
- Formal Differentics
- Difference Information Theory
- Difference Algebra
- Difference Metrics
- Difference Geometry
- Difference Topology
- Difference Dynamics
- Difference Networks
- Difference Fields
- ADP–TRIFORMER Methodological Model

These documents collectively establish the initial theoretical framework of Differentics.

10. Research Philosophy

Differentics is proposed as an open scientific framework.

Its principles are expected to evolve through:

- mathematical development,
- empirical verification,
- interdisciplinary collaboration,
- formal criticism,

- experimental testing.

Scientific progress requires continuous refinement.

11. Future Roadmap

The long-term objectives include:

- formal mathematical proofs;
 - computational simulation;
 - AI implementation;
 - Difference Engine development;
 - ontology of Difference;
 - experimental validation;
 - educational materials;
 - international collaboration;
 - academic publications;
 - open-source research tools.
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12. Conclusion

Differentics proposes a simple yet ambitious idea:

Difference is not merely one property among many.

Difference is the prerequisite that allows every identifiable property to exist.

Whether viewed through mathematics, information theory, computation, cognition, or natural science, Difference appears as the universal condition that makes distinction possible.

This Whitepaper represents the first concise public overview of the Differentics research program and serves as an invitation for discussion, collaboration, formal analysis, and future scientific development.

References

The complete theoretical foundation is documented in the Differentics publication series beginning with:

Document No. 1 — DIFFERENTH Manifesto

Document No. 2 — DIFFEREDITIONARY

Document No. 3 — Axiomatic Foundations of Differentics

Document No. 4 — Formal Differentics

Documents No. 4.1–4.8 — Formal Differentics Mathematical Corpus

Document No. 5 — ADP–TRIFORMER Methodological Model
